

### **Drawing Amendments**

Applicants have complied with the sequence rules by inserting the sequence identification numbers of all the sequences recited in the specification and claims. In particular, Figs. 3, 12A-12B, 14, 18, 19, 20A-20B, and 21A-21F.

Applicants hereby submit replacement sheets, one through twenty-two (1-22), and are labeled as such.

The amendments to the drawings are in compliance with 37 C.F.R. §§1.84 and 1.121(d). These amendments contain no new matter.

Entry of the amendments to the drawings is respectfully requested.

## REMARKS

### SUMMARY OF CLAIMS

Claims 9-19 are pending in the application. Claims 13-15 and 19 are rejected. Reconsideration is respectfully requested in light of the following remarks.

Claims 9-12 and 16-19 are withdrawn.

Claim 13 is currently amended.

Claims 14-15 are original.

Claims 20-22 are new.

Support for the amended and new claims can be found in the specification and figures, for example, at page 33, lines 21-22; page 28 lines 8-10 and replacement Figures 12A-B and 14. No new matter is entered by the amendments.

### SPECIFICATION AND DRAWING AMENDMENTS

The specification and claims have been amended to comply with the sequence rules by the insertion of sequence identification numbers. A cross reference has also been added to the specification.

### CLAIM REJECTIONS

#### I. Claim Rejections – 35 U.S.C. §112 Second paragraph

The Examiner has rejected claim 13-15 on the ground of being indefinite under 35 U.S.C. 112 Second paragraph.

In the Action, it is stated that the recitation of “sequence encoding an AppA phytase or encoding a natural variant thereof” in claim 13 is unclear. Claim 13 presently recites a method of producing recombinant phytase having modified activity, said method comprising:

- a) providing a nucleic acid comprising a sequence encoding a signal sequence operable in a *Bacillus* species and a sequence encoding the AppA phytase of SEQ ID No. 2 or encoding a naturally occurring phytase of another source which is at least 60% identical to the AppA phytase of SEQ ID No. 2;
- b) subjecting said nucleic acid to error-prone amplification;

- c) transforming a host cell with an expression construct comprising a product of said amplification; and
- d) culturing said host cell under conditions suitable for said cell to express said amplification product.

Without conceding to the rejection but to further prosecution of the application, Applicants submit that claim 13 in present form recites an AppA phytase” that is disclosed as SEQ ID No. 2 (i.e., sequence EBC18B2 which is now additionally labeled SEQ ID No. 2 in Figures 12A-B). As such, this feature is clarified through reference to a defined sequence. Similarly, the meaning of a “natural variant” has been clarified by reciting a naturally occurring phytase of another source which is at least 60% identical to the AppA phytase of SEQ ID No. 2. Again, the feature is clarified through reference to a defined sequence. Accordingly, the invention is particularly pointed out and distinctly claimed. Withdrawal of the rejection is respectfully requested.

## II. Claim Rejections – 35 U.S.C. §102 (e)

The Examiner has rejected claims 13-15 and 19 as being anticipated by Short et al in US Patent No. 6,720,014 (“Short” hereinafter) on the grounds that Short showed methods of making variant phytases comprising error-prone amplification of a naturally occurring *E. coli* phytase nucleic acid and isolation of the mutant phytase. The Action further stated that Short teaches suitable recombinant hosts including *E. coli* and *Bacillus subtilis*. Applicants traverse.

Short does not teach or disclose “a nucleic acid comprising a sequence encoding a signal sequence operable in a *Bacillus* species” as recited in present claim 13. While Short makes mention of extracellular expression using secretory signal sequences (see e.g., column 42, lines 30-41) the reference fails to disclose a signal sequence operable in a *Bacillus* species as recited in claim 13. As such, Short did not anticipate because it did not teach each and every element of the invention in claim 13.

Claims 14 and 15 depend from claim 13 and therefore include each and every element of claim 13 including a signal sequence operable in a *Bacillus*

species. It follows that the reference fails to teach each and every limitation of claims 14 and 15 and they are also not anticipated.

In sum, Applicants respectfully request withdrawal of the rejection.

### CONCLUSION

In light of the remarks set forth above, Applicants believe they are entitled to a letters patent. Applicants respectfully solicit the Examiner to expedite the prosecution of the patent application to issuance. Should the Examiner have any question, the Examiner is encouraged to telephone the undersigned.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 07-1048 (Attorney docket No. GC 718-2-US) for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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